Aalto University
School of Engineering

Covid-19 pandemic and 3D Printing

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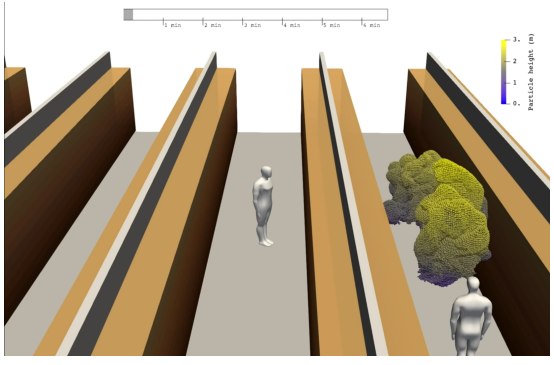
Some actions in Aalto related to covid-19

Act early: remote teaching & research – laboratories temporally closed, now opening with restrictions



Help example in:

Modelling of the spread in aerosols

Statically analysis of the spreading

Helsinki GSE situation room - economics

Help to establish local manufacturing, 3D printing etc.

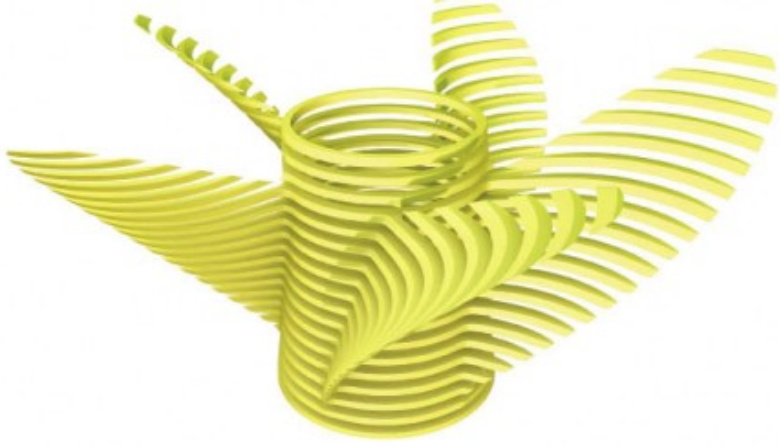
Expected that funding for University will decrease next year – especially external funding.

3D printing

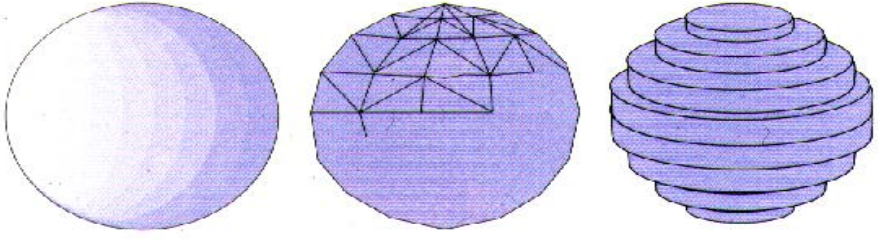
From 2D slices to 3D form

-simple & easy for automation

- Building layer by layer



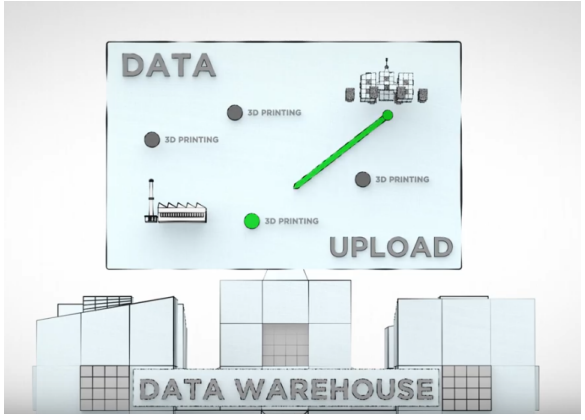
3D model **STL** **Layers**



Some of current challenges

- Extreme high global need of certain medical stuff
- Limited manufacturing in most of countries
- Availability of certain parts/products/raw materials
- High prices & delivery times
- Export restrictions
- Maintenance – restrictions in traveling

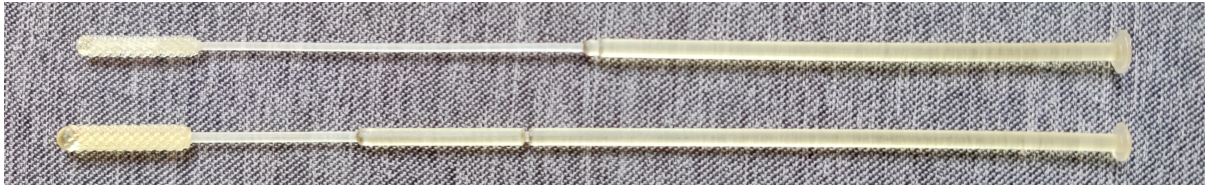
Possibilites of 3D printing

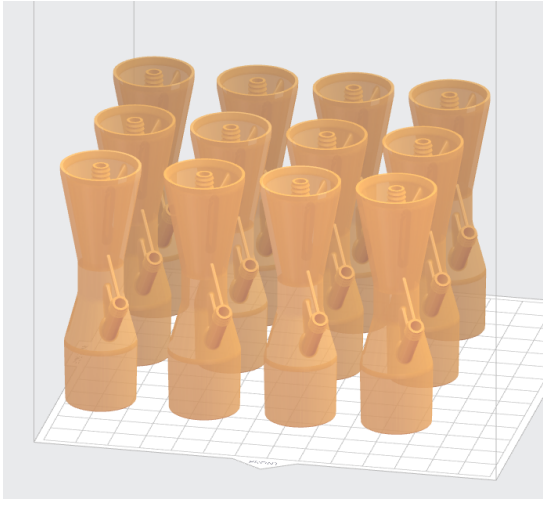


- No minimum order quantities
- Reduction of delivery time
- Local manufacturing
- Data can travel where physical parts cannot
- Parts do not have to pass through borders / customs
- Positive environmental impact – use only needed material
- Upgraded parts
- Emergency parts
- Repairing existing components

3D printing examples for covid

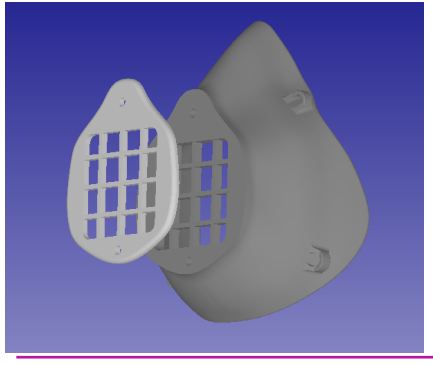
Nasal swaps for taking sample for testing





Venturi valve

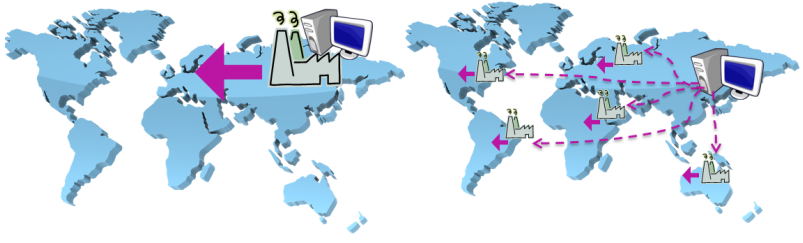
Face mask + lid



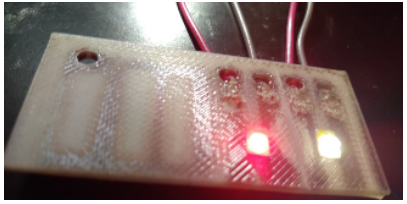
Holder face shield

Other possibilities for 3D printing

- Spare parts for hospitals, factories, waterworks etc. Keep up the things running
- Increase the local manufacturing – not so depended on global supply chains
- Innovation potential – optimize the geometry and product
- Continuous improvement cycle



Key takeaways



- In 3D printing need to know which process and material to select. Universities have knowledge.
- If there is a problem – solution might be closer than you think – open your eyes and share the problem
- We need to work together: companies, government, universities etc. We are in the same boat!
- Need to take risks that can be controlled! Do not hide behind normal protocols and regulations!
- Not approved one might be better than having none at all

Questions ?

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